

Intraocular lens glistening

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Cataract surgery or refractive lens exchange is a commonly performed surgery worldwide that is associated with a high success rate. For decades, the intraocular lens (IOL) material has been studied. However, the ideal material remains a debate due to conflicts of interest and financial bias. The ideal material reportedly depends on various factors such as the manufacturing process, packaging system, water content (hydrophilic and hydrophobic IOL), and temperature changes.

In hydrophobic IOLs, a hydration-related phenomenon of tiny droplet formation (called glistening) has been a major issue even though it may not cause a loss of visual quality. The efforts of the industry to develop a glistening-free material have captured the attention of surgeons who are seeking such information after a long period (>10 years) of IOL implantation.

Recently, four major IOL models were studied using optical coherence tomography (OCT) and a deep learning-based algorithm to quantify the intensity of glistening in 325 patients who had undergone IOL implantation 2–4 years ago. The authors identified glistening in the following IOLs:

- ReSTOR SN6AD1: n=22 (53.7%)
- ReSTOR SN60WF: n=44 (40.0%)

- PanOptix TFNT: n=49 (38.3%)
- Vivity DFT015: n=4 (8.7%)

The study also discussed the following issues and controversies:

- IOL glistening remains a major issue even today.
- IOL manufacturers face challenges in improving IOL quality and developing a glistening-free hydrophobic material.
- The relationship between the presence of glistening and its effect on visual quality remains controversial.
- Newer IOL models (probably improved material) reportedly exhibit reduced glistening. However, the long-term outcomes (>10 years) of these models must be evaluated to validate these findings.
- Glistening severity and intensity can be measured by OCT and analyzed via a deep learning algorithm.
- Surgeons must alert patients that certain IOLs can present with glistening in any hydrophobic material.
- Further studies that are not funded by IOL industries must be conducted to evaluate long-term glistening.

In conclusion, the study suggests that long-term opacification in hydrophobic or hydrophilic IOLs must be further evaluated to develop better quality IOLs with long-lasting clarity to avoid exchange surgeries.

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Article reference of the review

Fernandez-Vigo JI, Macarro-Merino A, De Moura-Ramos JJ, Alvarez-Rodriguez L, Burgos-Blasco B, Novo-Bujan J, et al. Comparative study of the glistening between four intraocular lens models assessed by OCT and deep learning. *J Cataract Refract Surg.* 2024;50(1):37-42.

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